

Remarks* by

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Good morning and thank you very much, Ned (Sharpless).

Ned has been an exemplary leader who has brought a fresh perspective to NCI. One reason he has been such an effective NCI director is that he seamlessly places both science and patient first. He is knowledgeable, fair, personable, and approachable, and has superb judgment. These qualities and more have made it so enjoyable for me to work closely with Ned. They will also help him to be highly successful at the FDA.

Ned has enabled NCI and cancer research to make real progress in his 18 months at the helm, and I look forward to picking up where he leaves off. We are glad to have a colleague who is an oncologist and an outstanding cancer researcher in the top leadership role at the FDA. I know he and I will continue to work together, although soon from different agencies.

As Ned has said, this is an exceptional time in cancer research. I'm pleased to share some examples of how NCI aims to make the most of the extraordinary opportunities before us.

Along with declining mortality, new therapies, and the increase in industry investment and drug approvals, we have noticed another encouraging trend, which is the increasing number of grant applications being sent to NCI.

***This text is the basis of oral remarks by Douglas R. Lowy, the then NCI Deputy Director. It was originally part of the NCI Director's and Deputy Director's remarks. Use with the understanding that some material may have been added or omitted during final presentation.**

There has been a huge spike in recent years—about 50% since 2013. This increase in the number of applications submitted to NCI accounts for about two-thirds of the total increase in applications to NIH during this period. Most of this increase is attributable to additional investigators submitting R01 applications to NCI. These statistics reflect an enthusiastic workforce that sees a lot of opportunity in the field of cancer research. This is a great sign!

However, we need to remember that NCI receives only 16% of the total NIH budget. Given the imbalance between a 50% increase in applications over a period when NCI has received a 20% increase in its funding, the truism that we always run out of funds before we run out of promising research ideas is even more valid today than in the past.

So, while an influx of applications is good for science and good for patients, it's hard on the researchers who are applying, because there is even more competition.

Speaking of funds, more than 40% of NCI's total budget is distributed across the research community in grants. A large portion of that amount supports basic research, which is, of course, foundational to our progress.

While we have made important strides in understanding the molecular pathogenesis of cancer, we are not finished. Not by a long shot. There are still many mysteries to solve and they cannot be solved without investing in basic research.

To ensure that great research in basic science can continue we need to increase the pool of funds available to support meritorious proposals. For FY 2018, we added more than \$170 million to the pool of funds available for grants, some of which came from Cancer Moonshot funds. For FY 2019, we are aiming for a sizable increase again.

We have only been able to do this thanks to recent increases to our base appropriation, together with the funding from the Cancer Moonshot. And while NCI must continue to prioritize investigator-initiated research, we will be challenged to do that if our budgets do not meet the pace of the application curve. NCI must continue to make these investments, not only because they have the potential to change the field, but also because other funders of cancer research are not able to fund the long trajectory for basic science.

Investing in basic science is how we'll identify new targets and mechanisms that will lead to new, more effective approaches for the prevention, screening, and treatment of cancer. Ultimately, that is how we will provide the greatest benefit for our patients.

As Ned mentioned, there is a lot of excitement about a proposed new Childhood Cancer Data Initiative. There are approximately 16,000 children and adolescents diagnosed with cancer in the United States each year.

Nine-year-old Grace Eline was diagnosed with germinoma last May, received chemotherapy, and is now cancer-free. She attended the State of the Union address in February and is determined to help other children who are fighting cancer.

NCI has a long history of contributing to important advances in childhood cancers, from the first uses of chemotherapy to cure children with acute lymphocytic leukemia (ALL), to the Pediatric MATCH trial, which uses precision oncology to evaluate 10 agents—and counting—including some being tested in children for the first time.

The President announced in his State of the Union address that his budget proposal would ask Congress for \$500 million over the next 10 years to fund critical, life-saving research for children's cancer.

Given the number of patients and the cohesion of the institutions where most of them receive their care, we have an opportunity to provide state-of-the-art clinical care to each child—and to learn from every child in an intentional and organized manner.

If we can combine the siloed information from each institution, we will have the potential to chart a path that would change the course of cancer in all children. To this end, the NCI has developed a Childhood Cancer Data Initiative, which will establish more efficient ways to share and use data. The initiative involves developing a national data collection protocol, establishing interoperability, integrating the data, and making the data available to those who need it most.

As with all aspects of cancer research, collaboration is key. We must collaborate to coalesce existing datasets. We must collaborate to consistently collect and share data across the field. We must collaborate to move forward in ways that protect the privacy of patients. We believe this new data initiative will provide what we currently lack: better and faster sharing of data around the country and around the world.

We have been working with Secretary Azar and the White House on some initial stakeholder events. Early discussions with members of Congress suggest that they, too, recognize this critical opportunity and are eager to support this effort. We are planning a scientific meeting to take place this summer to further shape this initiative.

We see this is an excellent complement to our ongoing efforts in pediatric cancer research. When we break down siloes and truly cooperate, we, as a community, can learn from every child.

We are grateful for the strong bipartisan support in Congress, the increases to our base appropriation for several years, and the Cancer Moonshot. This support has allowed us to continue to build on important flagship programs such as the NCI-designated Cancer Centers, the National Clinical Trial Network (NCTN) and the NCI Community Oncology Research Program (NCORP), and the Specialized Programs of Research Excellence (SPOREs). It has also enabled us to build newer programs such as the RAS Initiative, the Precision Medicine Initiative, the Genomic Data Commons, a national Cryo-EM facility, and many more, in addition to maintaining our ongoing commitment to investigator-initiated research.

For the upcoming fiscal year, the President's budget proposal includes a little over \$5 billion for NCI. We will see what action Congress takes now that they are reviewing this proposal. As part of this process, I will be representing NCI at two appropriation hearings in Congress over the next 2 weeks.

The Cancer Moonshot has provided additional funds to NCI for some special initiatives since 2017. The current fiscal year is the peak of those funds. Beginning with 2020, the amount is reduced by about 50% for the next 4 years and disappears entirely in 2024.

As you will hear in a panel session later today, Cancer Moonshot funding has helped to establish several new networks that are facilitating collaboration and accelerating progress for the field and for our patients.

I would like to recognize the successful efforts of Dr. Dinah Singer and of many other NCI colleagues whose dedication has made it possible to make so many awards to our extramural colleagues in record time.

The Moonshot panel session is just the beginning. Later today there is the special symposium to celebrate the work of my dear friends and colleagues, Drs. Joseph Fraumeni and Frederick Li as well as programs devoted to some of the initiatives I have mentioned.

In addition, many NCI colleagues will be speaking here at AACR. I encourage you all to learn about NCI's intramural and extramural research opportunities and to stop by our exhibit.

In conclusion, let me come back to the main theme of Ned's and my presentation: the progress we are seeing is tremendous, but we still have much to do.

Cancer research is an amazing enterprise, with each of us making our distinct contributions to something that is much bigger than each of us. Another way of thinking about it is that when what we do goes well, the whole is always greater than the sum of its parts.

The AACR meeting is a great opportunity to learn new things and to make new connections, as we build on previous discoveries. It is also an opportunity for each of us to chart or refine the course by which we plan to contribute to the progress that we know lies ahead.

This week, let us all discover some new truths. Let us endeavor to drink from wells we did not dig. Let us warm ourselves by fires we did not build.

And as we stand on the shoulders of giants, let us see farther and chart an even bolder course by digging the well deeper and building the fire ever brighter for ourselves, for the cancer research community, and, most importantly, for our patients.

Thank you.